



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,815	09/16/2003	Junichi Ishimine	031184	1108
38834	7590	12/15/2005	EXAMINER	
WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP 1250 CONNECTICUT AVENUE, NW SUITE 700 WASHINGTON, DC 20036			THOMPSON, GREGORY D	
			ART UNIT	PAPER NUMBER
			2835	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/662,815	ISHIMINE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Gregory D. Thompson	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 28 September 2005.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 3,13-16 and 21-30 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,2,4,5,7-12,18 and 19 is/are rejected.
- 7) Claim(s) 6,17 and 20 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>3/04 : 5/05</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

1. Applicant's election without traverse of Figs.1-3A and 4A with claims 1-2,4-12 and 17-20 readable thereon the reply filed on 9/28/05 is acknowledged.

***Specification***

2. The disclosure is objected to because of the following informalities: Page 8, lines 14-15 should refer to Figs. 3A-3B and Figs. 4A-4B. Page 7, line 28 number 164 should be 164A. Page 10, line 1 number 160 should be 160A. Above are just a few examples. Appropriate correction is required.

***Drawings***

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Page 10,line 10 number 210. Above is just an example. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

Art Unit: 2835

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Objections***

4. Claims 2-4,6-8,10-12 and 17-20 objected to because of the following informalities: The preamble should read "The package" for a consistent preamble. Appropriate correction is required.
5. Claims 1,9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 7-10 indefinite/confusing rendering claim scope difficult to determine. The sink 160A is not connected to package board 110 by the first pressure 180A nor is the board 110 compressed against board 200 by the second pressure 190.

Claim 9, line 9-10 indefinite/confusing rendering claim scope difficult to determine. The second pressure 190 does not compress the stiffener 150A against board 200.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-2,4,7-10,12,18-19,insofar as understood, are rejected under 35 U.S.C. 102(e) as being anticipated by Ali et al. The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The package board (broad term) is 112 with element 110 mounted thereon, circuit board is 130, heat sink 160 thermally connected to circuit 110,socket (broad term) is 120, heat spreader (broad term) is 140 that thermally connects sink 160 to circuit 110. The stiffener (broad term) is plate 150. The first pressure (mechanism) would be nuts 162A, 162B for pressing the sink 160 to board 112 and pressing the sink 160 against stiffener 150. The second pressure (mechanism) would be 152A, 152b for pressing the board 112 against board 130 and pressing the stiffener 150 against board 130.Regarding claim 2, the first pressure 162A , 162B can be less than the second pressure 152a ,152B since 162a,162b can be adjusted to provide the desired clamping

force , col. 4, lines 61-64. The above rejection is given insofar as understood from the 112 problems listed above.

8. Claims 1-2,4,8-10,12,19 rejected under 35 U.S.C. 102(e) as being clearly anticipated by Goodwin.

The package board (broad term) is 12 mounted with circuit element 14 mounted thereon, circuit board is 130, heat sink is 40 thermally connected to circuit 14, stiffener (broad term) is 60 and socket is 20. The first pressure (mechanism) would be springs 48 connecting sink 40 to board 12 and sink 40 to stiffener 60. The second pressure (mechanism) would be springs 46 compressing the package board 12 against board 130. Regarding claim 2, the first pressure (stiffness) 48 is less than the second pressure 46, lines 60-64. The above rejection given as insofar as understood from the 112 problems listed above.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 5,11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ali et al as applied to 1 above, and further in view of Nguyen.

Ali does not teach resin for the package board. Nguyen discloses a package substrate or board 203 composed of resin. Therefore, considered obvious to one of ordinary skill in the art at the time of the invention was made to composes board 112 out

Art Unit: 2835

of resin as taught by Nguyen to provide a board with superior electric properties less expensive than ceramic.

11. Claims 5,11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodwin as applied to claim1 above, and further in view of Nguyen.

Goodwin does not teach resin for the package board. Therefore, considered obvious to one of ordinary skill in the art at the time of the invention was made to compose board 12 out of resin as taught by Nguyen to provide a board with superior electric properties less expensive than ceramic.

12. Claims 6,17 and 20 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

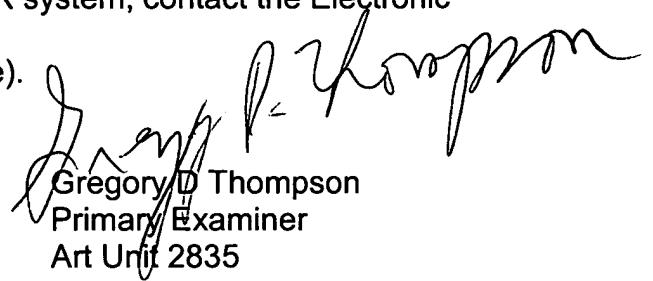
The art does not teach nor suggest a spreader with a convex section as claimed in claims 6 and 17. The art does not teach nor suggest the stiffener adhered to the package board as claimed in claim 20.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory D. Thompson whose telephone number is (571) 272-2045. The examiner can normally be reached on M-Thur.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2800,ext. 35. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2835

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Gregory D Thompson  
Primary Examiner  
Art Unit 2835